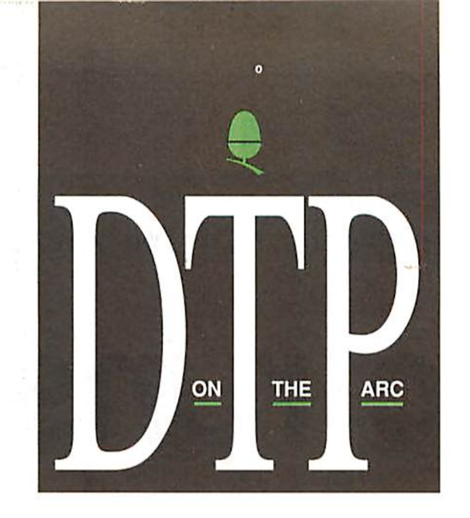
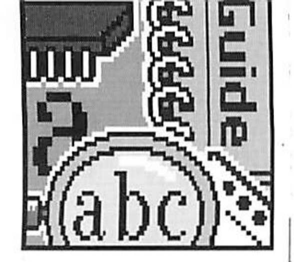

DTP
ON THE ARC



James Lynn explains why the Archimedes and BBC A3000 are

Risc runs true to type



Acorn Archimedes A440/1 – top of the range with 4Mb of Ram and a 50Mb hard disc

Desktop publishing grew out of one of the most popular uses for computers – wordprocessing. Traditional wordprocessing is usually only able to handle text, and the quality of that text and the range of typefaces available are usually dependent on the printer connected to the computer.

Advances in computer power gave rise to programs which could do much more than manipulate text on its own, and desktop publishing was born. DTP offers far more control over a finished document, a greater range of typefaces and type sizes, and allows illustrations and columns to be incorporated. The term 'desktop publishing' was coined because the new programs allowed the personal computer user to produce results that, a few years ago, could only have been produced using traditional publishing and printing techniques. Now it's possible to create documents on a personal computer that are practically indistinguishable from traditional professional publications – this supplement, for example, was entirely produced on an Acorn Archimedes.

In 1987 the first Acorn Archimedes – the A310 – was hailed as the fastest personal computer available. While some high-priced business machines have since caught up, the Archimedes remains by far the fastest affordable range of micros. And with Acorn's Risc OS operating system, programs on the Arc and the A3000 can make use of windows, icons, menus and an on-screen pointer (the WIMP system) to make this raw power easy to use.

While the 310 is no longer made, the range now starts with the latest BBC micro – the A3000. This has the keyboard, circuitry, power supply and disc drive in a single case, so all you need to add is a monitor. As standard, one 3.5in floppy disc drive is fitted, together with 1Mb of Ram and a three-button mouse. The memory can easily be upgraded to 2Mb if necessary.

Three other machines comprise the 400/1 series. They differ externally from the A3000 in having a separate keyboard and system box. They can also have hard disc drives built-in – the A3000 can be upgraded to take a hard disc, but only in a separate case. The A410/1 has 1Mb of Ram and a single floppy disc drive, plus plenty of room for internal expansion. The A420/1 has 2Mb of Ram and a 20Mb hard disc. Both machines can be upgraded at any time to the same specification as the top of the range machine, the A440/1, which sports 4Mb of Ram and a 50Mb disc. And all four machines are compatible – they run exactly the same software.

Also in the Archimedes range is the Acorn R140, which is similar to the A440/1 except that it normally runs the Unix operating system. But it can also use Risc OS and all the standard Arc software whenever required.

All the Archimedes machines run at the same speed – fast. In fact they now run about 10 per cent faster than the original A310. The Archimedes' speed is due to the revolutionary microprocessor chip it uses – the ARM (or Acorn Risc Machine). This chip offers high speed at a low price, and ensures the Archimedes can easily outperform computers that cost two or three times as much. Risc stands for Reduced Instruction Set Computer – a simplified processor that's stripped down for speed like a racing car. It uses fewer, simpler program instructions than the usual Complex Instruction Set Computer, so it is able to process those instructions much faster. Since most programs very rarely use those complex instructions, missing them out and occasionally having to use two or three of the simpler Risc instructions instead still gains you speed. It's an approach Acorn helped pioneer, and is now being taken up by all the major microprocessor manufacturers.

There are many reasons why the Arc is an ideal machine to use for desktop publishing, and foremost among these is its speed. DTP requires an enormous amount of processing power to work effectively – it's no good if each small change to a document means that the computer has to 'think' for minutes on end. The Arc's speed means that you can make changes to a document and see the results on screen almost instantly, giving you great flexibility of design.

The range of monitors supported by the Arc is another great advantage – it can use anything from the humblest monochrome monitor, through normal colour monitors, to multisync monitors, even a mammoth 19in high-resolution monitor (on the 400/1 series only). And if you want to upgrade, just plug in a new monitor. Unlike business PCs, you don't need a new £200 'video adaptor card' each time: even the A3000 can get the best out of almost any monitor. The quality of the display is excellent, especially its method of displaying typefaces – as explained in the panel opposite.

The Risc OS operating system makes the Archimedes extremely friendly. It is Wimp-based and multi-tasking, which enables you to run several programs at the same time – each has its own separate window on the screen, and its own group of menus called up with the middle mouse button. These programs can all communicate with one another so information can be transferred between them, often just by using the mouse to drag an icon across the screen from one window to another. This means that, for example, while using your DTP program you can use a scanner to scan a drawing or photograph, then place the scanned picture directly into

designed for desktop publishing...



The A3000 is the latest BBC micro, and is just as powerful as the rest of the Acorn Archimedes range

your document. This can be done without having to quit from the desktop publishing application in order to use the scanner program.

The clinching point in the Archimedes' favour has to be its price. The top of the range A440/1 costs £2499. If you wanted an equivalent Macintosh system, often chosen for desktop publishing, it would be over £4000. An A3000 with a colour monitor costs under £1000.

As well as the Archimedes itself, there is a huge range of software and add-on hardware that can be used with it. For desktop publishing, the most important add-on must be the printer – after all, what good is all that power if you can't put the results on paper? The Arc supports a wide range of printers, from inexpensive but slow dot-matrix printers to high-quality laser printers. Malcolm Brown looks at the options for hard copy on page 7. For those who want the ultimate in copy quality, it can even print to Postscript photo-typesetters like those used by professional publishers.

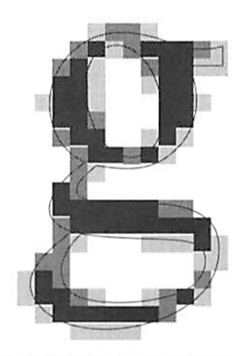
Which monitor you use with the Archimedes is largely a matter of preference. The standard resolution colour monitor, from Acorn, Philips, Microvitec and a host of other companies, gives a good quality picture, but has a limited vertical resolution – up to about 300 lines. Even a budget mono monitor, costing well under £100 from Philips for example, is perfectly suitable. For higher resolution, a multisync colour monitor such as the Taxan 770+ or Eizo 8060 gives a much clearer picture. If you need the high resolution but don't need colour (and for desktop publishing work, colour is often unnecessary), you can use a monochrome multisync monitor like the Mitac MTR-14MM which offers the same resolution and lack of 'flicker' as its colour counterpart but costs a fraction of the price. And for those who need an extra-large display, the 400/1 machines can be used with a 19in mono monitor like the Taxan Viking R140, which is able to display two complete A4 pages side-by-side at a readable size.

For illustrations, you can draw them yourself with appropriate software, or use an existing picture. Scanners are useful when you want to incorporate drawings or photographs in your documents. There are many available, any of which can produce images suitable for inclusion in a DTP program. Another way of grabbing existing images is to use a video digitiser, which takes a video signal and converts it into a form ready for displaying on the computer. These are useful if you need to take images from a video recording, or direct from a video camera, but are not as suitable for digitising documents. Graham Bell discusses how to make the best of your desktop documents by incorporating data from other hardware and software packages on page 12.

Anti-aliasing Most computers, including the BBC Master 128, the IBM PC and even the Apple Macintosh display text as bit-maps – that is, each character is held as a simple pattern of black or white pixels. Printing larger is a matter of enlarging the pattern, with the result that the character gets very jagged edges. Smaller versions of the pattern rapidly become unreadable too. And storing the bit-maps for numerous typefaces at a number of different sizes uses huge amounts of hard disc storage space.

The Archimedes, by contrast, stores its typefaces as outlines: each letter is a set of straight lines and curves. The outline can be drawn at any size, and yet retain its smooth edges no matter how large it is displayed. And the outline can also be used to control the printer, so what's on paper exactly matches the screen.

The Archimedes also retains the readability of small sized fonts by a technique known as anti-aliasing, whereby extra grey pixels make small characters appear smoother. If the correct outline for a character covers half a pixel, it is shaded mid-grey.



Top: 20point bit-maps created by enlarging a 10point character (l) or directly from outline data (r). Bottom: pixels partly within outline are shaded grey by anti-aliasing

DTP Checklist An ideal hardware system for desktop publishing on the Archimedes might look like this:

- Archimedes 420/1, £1954
- Taxan 770+ colour multisync monitor, £460
- Hewlett Packard Deskjet Plus printer, £630

Of course, you could choose an A410/1 (£1379), and upgrade it yourself with an extra 1Mb of memory (£130) and a 20Mb hard disc (£230). Optional extras might include a document scanner (£175) or a larger hard disc (40Mb for £375). This system is suitable for almost any business use – including publishing a magazine like this! A more budget-concious choice that's well-suited to school or home needs could be:

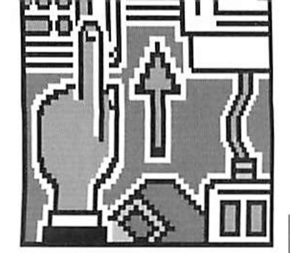
- BBC A3000 bundled with colour monitor, £955
- Panasonic KX-P1124 24-pin printer, £285

As well as the hardware, you need software. Several of the applications on the Archimedes welcome discs are useful as part of a desktop publishing system – *!Paint* and *!Draw* in particular – but you will need to equip yourself with suitable page layout software.

All prices include VAT, and should be taken only as a guide. Individual Acorn dealers may not stock all the items at the prices shown, and most prices can be beaten by shopping mail-order from the current issue of *BBC Acorn User*. However, buying locally has the advantage that advice and support are more readily available.

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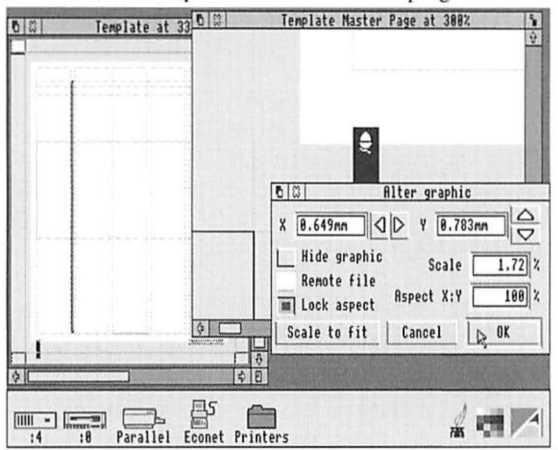


You've got the ideas. Now Graham Bell examines how you can get

Right on top of the word

Archimedes and A3000 micros are particularly well suited to desktop publishing, and a number of companies have created complete DTP applications for the machine. Acorn's *Desktop Publisher* and Computer Concepts' *Impression* have already been released; Beebug and Clares have announced competitive page composition packages, and the panel opposite takes a look at what will be available in a couple of months.

Desktop Publisher started life as a relatively humble package – *Timeworks* – early DTP software for the Atari ST and its Gem windowing system. It was a straightforward low-budget clone of the best-selling *Ventura* package for IBM PCs, which is used mainly in the world of business. *Timeworks* was later ported to the PC itself, to compete head-on with its progenitor. Its third incarnation is on the Arc where, thanks to the speed of the Arm chip, it runs very much faster. It retains the flavour of earlier versions, but takes advantage of the font display abilities of Risc OS.



Impression: Setting up a master page with frame guides and graphics to appear on every page

Two years ago, Computer Concepts took a bold decision – to develop an office automation system around Acorn's Arm chip. To this end, it has developed Riscard, essentially an Archimedes on an IBM expansion card, and partly written Impulse, which was to be the operating system for Riscard. Other products such as the Scanlight scanner, the fax podule and the Concept R2 laser printer were also conceived as part of this grand vision. But with the appearance of Risc OS, Impulse was dropped and the plans modified to use Risc OS and the Arc instead. The final leg of the office automation structure was to have been a wordprocessor cum desktop publishing package, and so *Impression* became an Archimedes application.

Different histories: different styles. Although the fundamental methods used with both packages are the same, each has a definite style of its own. Acorn's offering is mainstream, almost conservative, slick but unremarkable. *Impression* is drawn from a more original strand, designed from scratch rather than seeking to emulate. Inevitably, it seems quirky. Many of the design points are more 'correct' than 'simple'. But it's just as usable a system, and is in many ways more powerful.

Whatever publication you intend to create, be it business card or book, any thought given to the design will be amply repaid. The first thing to consider is the size of the page, and how many words you want on it – this ultimately controls the size of the font you can use. Do you want the text split into two or more columns? How big a margin all round?

The answers give you the basis of the page grid – the structure of the design. A few sketches may help, especially if you're trying a big project.

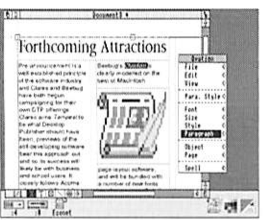
Both *Desktop Publisher* and *Impression* allow you to set up master pages, with grids showing the column structure and margins. These pages, and any frames you put on them, act as a template, a skeleton for each of the real pages in your publication. Of course, it's not necessary to bother with a master if you're only doing a single-page poster, but it's still a good idea if you do a similar poster each month. With *Desktop Publisher*, a master page can be saved separately and used as the basis for the second piece of work, thus giving the consistency that makes your work more professional.

For most work – magazines, books and even forms and letters – it's important to try to balance the size of your columns and margins, and the size of text you use. Columns of text are easiest to read if they carry about 10 words across. It gets progressively harder as they get wider, though a little extra space (leading) between lines may help. When justified, narrower columns tend to become 'looser', with uneven gaps between words, an effect that should be avoided. It is worth trying a few tests to see how many words across a column you get, with various typefaces in different sizes of type.

As for margins, resist the temptation to cram as much on a page as possible. Include some space, particularly at the foot of the page! Remember too that printers don't print right to the edge of the paper, so items that are too close will disappear. *Desktop Publisher* cannot show the print margin as a reminder, though *Impression* does – a grey border around the page indicates where the printer cannot print.

Once you have your overall document design, you can start assembling the elements of the page – text files, graphics and so on. The text is often already

your message into print with Impression and Desktop Publisher...



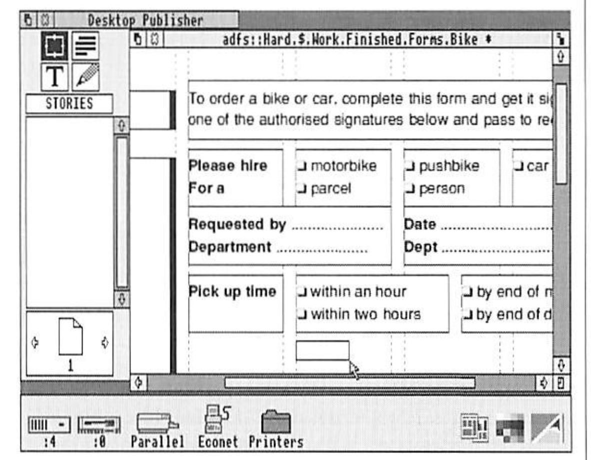
Top: Tempest. Above: Ovation. Left: Use the column guides to align parts of a form in Desktop Publisher

Forthcoming attractions Clares aims *Tempest* to be 'what *Desktop Publisher* should have been'; previews of the still-developing software (top right) bear this out, so its success will most likely be with business and school users. It closely follows Acorn's original in style, and anyone familiar with *Desktop Publisher* should be able to get to grips with *Tempest* quickly. But despite a lower price than *Desktop Publisher*, the key to its popularity will lie with the enhancements it offers. The feature list suggests it may succeed: an integrated wordprocessor and spelling checker; master pages with not only column guides but movable snap-to lines as well; multiple columns of text within a single frame; frame backgrounds of any colour, not just one of four greys; condensed type; views at any scale; export of text and graphics as well as import.

Beebug's *Ovation* (top right) is clearly modelled on the best Macintosh page-layout software, and will be bundled with a number of new fonts too – for example Paladin (Palatino) and Vogue (Avant Garde). It too will have most of the new features above, but uniquely among the four packages, text and graphics frames are hierarchical – move one box and all the boxes within it move too – so moving a picture should move the caption as well. This could be the more 'professional' of the two packages previewed here.

Pre-announcement is a well-established principle of the software industry. Neither of these applications are quite ready for release yet, and DTP applications are complex – expect them both around early summer.

written by this stage. It makes sense to use a wordprocessor that can make a direct link with the layout software you're planning to use. So for example, *Desktop Publisher* links well to *First Word Plus*, and you can take advantage of facilities like its spelling checker. Although it can read any Ascii text, most wordprocessor files need to be loaded into *!Edit*, and edited to remove any control codes. It may be necessary to add extra Returns at the end of paragraphs too, then the text can be exported onto the page. One of the biggest drawbacks of Acorn's *Desktop Publisher* is that on an unexpanded A310, A410 or A3000, you can't run the DTP application and *!Edit* at the same time – you need 2Mb of memory to multi-task sensibly – so the preparation of text really needs to go on separately from the page layout. You have to save the prepared text files on disc, then start up the page layout software and import them. However, once the text is on the page, you can still make changes to it, as there is a limited text editor built into *Desktop Publisher*.



Impression scores heavily here. First, there are a set of 'loader modules', which allow it to read text files from other wordprocessors: *First Word Plus*; *Interword*; *View*; Microsoft *Word* RTF (Rich Text Format) which is common on IBM PCs and the Macintosh. It can even read the text from *Desktop Publisher* files. This list is likely to grow. Second, *Impression* is itself a fully-fledged wordprocessor – and is quite capable of checking your spelling – so you may not need a separate wordprocessor at all.

Colton Software's *Pipedream* is another important link in the text chain: it has the ability to export text in a 'DTP' format that's readable by *Desktop Publisher*, and *Impression* can read *Pipedream* files directly. This isn't without its problems though: *Desktop Publisher* copes well with many *Pipedream* highlights like bold or underline, but you can't transfer font changes in this way – *Desktop Publisher*'s paragraph styles always take precedence. But using *Pipedream* is probably the best way of importing text from the other machines on which it runs – an IBM PC or Z88 for example. And it's an easy way of reading in *View* text created on a BBC Master 128. Another way around the same problem is Software Solutions' *!View-1WP* and *!WW-1WP*. These convert old BBC micro *View* and *Wordwise* files into *First Word Plus* form, which can then be read by *Impression* and *Desktop Publisher*.

One important dodge to learn if you are creating a document dominated by text is 'pre-tagging'. If you repeatedly create similar documents, you'll have names attached to all the paragraph styles you use, defined in a template file. As shown right, you can attach tags to paragraphs of text while it's in the wordprocessor, and the text will take up these styles when it's imported

Tagged text for Desktop Publisher:

<Subhead>Storm damage claims

Most insurance policies cover the items most likely to be damaged:

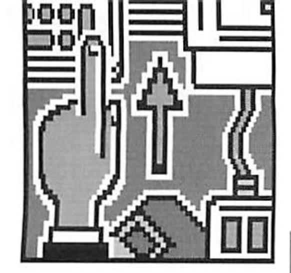
<Indent>Roof: lost slates are not covered, but major repairs...

For Impression, the styles have to be switched on and off:

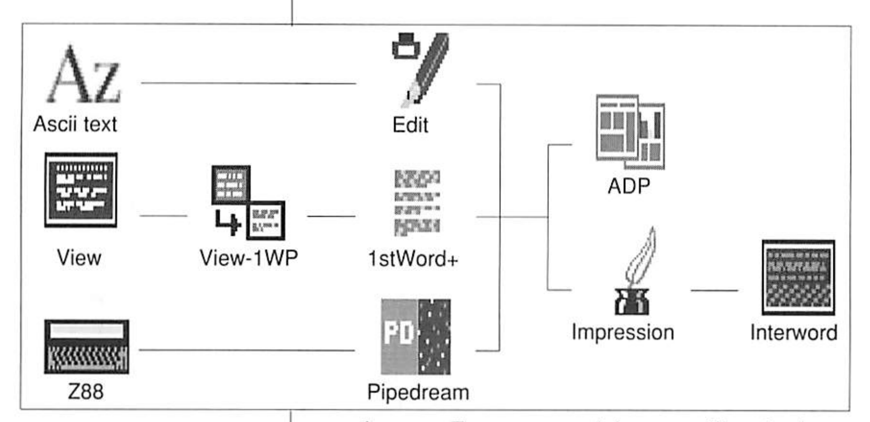
{"Subhead" on}Storm damage claims{"Subhead" off}

Most insurance policies cover the items most likely to be damaged:

{"Indent" on}Roof: lost slates are not covered... {"Indent" off}



Turning text into !Draw graphics makes vertical text a possibility



Text file transfer options

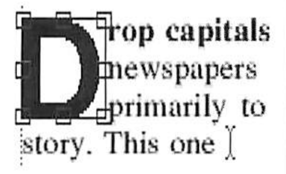
onto the page. For a structured document like a business or academic report, with lots of indented paragraphs, bullets and so on, this can be a crucial time-saver.

If you plan to desktop publish any major work – say a thesis or book, or a series of business proposals – then planning how you intend to create and import the text is vital. The chart above summarises the options, though it by no means exhausts the possible sources of text. For example a directory-style document or a catalogue might best be created by storing the data in Minerva's *Multistore* database. The report generator can be used to create pre-tagged Ascii text which you can then read into either *Impression* or *Desktop Publisher*.

Not all documents are predominantly text. Posters and such like demand large decorative headlines and illustrations. It's here that the small range of typefaces that Acorn and Computer Concepts supply is felt most keenly. But headline-sized text can be enhanced. The simplest improvement is kerning – closing up the gaps between letters. Small fonts need the space, but as the size grows, the gaps can be reduced so the letters are close, but not quite touching. It has to be done for each individual pair of letters, but the effort gives a headline more impact.

Impression allows you to condense text, but this is impossible in *Desktop Publisher* (you must avoid condensed text even in *!Draw* graphics files). Headlines are often condensed simply to get an adequate number of characters in, but don't squash one line to 75 per cent and another to 60 – it looks terrible. Condensing the Homerton typeface can look ugly, as its horizontal and vertical strokes are designed to have equal weight. But condensing the Trinity face can be very elegant (the page number below is condensed to 75 per cent of its natural width, 'DTP' on the cover to 50 per cent).

The other way to deal with large headlines is to treat them as graphics. Both *Impression* and *Desktop Publisher* can import *!Draw* files – but turning the text into graphics is a tricky job. *Impression* is bundled with a superb utility called *!Fontdraw* to do just that (it can be used with *Desktop Publisher* too). You type in the headline text, select the typeface, and it creates a *!Draw* file containing the outlines of the characters taken directly from the font outline definitions. Of course, once the text is a drawing, you can condense it, kern it (use a grid to make sure you only move the letters horizontally), change the text colour, even make it cast a shadow or turn it into an outline. And this is the only way of rotating text to create vertical headlines, map labels or graph axes (handy hint: group all the letters before you rotate). If you don't have *!Fontdraw*, then a similar effect can be obtained by dragging characters one by one from the font editor *!Fonted* into a *!Draw* document (again, set a grid to ensure they all line up).

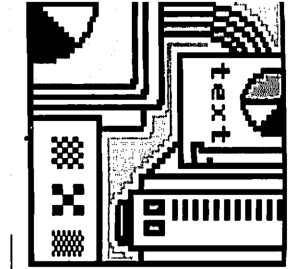


Above: one-box drop capital. Letter outline is imported into the box direct from !Fontdraw or !Fonted. Below: two-box method, more suitable when the letter may change as the text is edited. The underlying repel box is selected



Drop capitals like this are a feature often seen in newspapers and magazines: they are used primarily to lead the eye to the beginning of a story. This one was put in with the 'one-box method' – that is, draw a frame to hold the letter, then import the letter outline from *!Fontdraw* or *!Fonted*. In *Impression*, the letter scales automatically. But *Desktop Publisher* can ruin the effect if the frame is too narrow or wide: it doesn't fix the aspect ratio of the letter shape, so the one-box approach isn't usable. A better but more complex way is the 'two-box method' shown far left. The larger box holds a capital letter, which has its size and typeface altered but is otherwise just a normal letter typed in. The box is transparent and does not repel text, so it can be any size. The smaller box is underneath the larger one, and is there solely to repel the main text from the area occupied by the drop capital. The advantage of this is you can easily change the letter if you want, and adjust the repel box – aim to make it as small as possible without the main text to touch it.

The last way of tightening up text is by controlling the spaces between words and the hyphenation. *Impression* is weak here, and a style called Nohyphen – which just switches hyphenation off temporarily – is vital to control its poor hyphenation choices. *Desktop Publisher* allows you to set the maximum and minimum size of word spaces, though the default maximum is too big (reduce it to 0.7 for the best effect). With use of a spelling checker, careful selection of point size and line spacing, and control of word spacing, hyphenation, and kerning, your desktop published text and headlines can look as impressive as those of the professionals.



Malcolm Brown picks the best printers: matrix, laser or inkjet...?

Hardware for hard copies

The growth of desktop publishing is closely linked with the availability of the Apple Laserwriter, the first even remotely-affordable Postscript laser printer. But although personal laser printers were practically invented for DTP, they are not the only sort of printer you can use. Postscript laser printers are undoubtedly the 'best', but they're also the most expensive. Even the cheapest will cost you considerably more than an A3000 system to buy and run.

Thanks to the Risc OS printer drivers supplied with the Archimedes and A3000, the whole spectrum of printers can be used with DTP software (and for that matter with any other Risc OS applications). It is the printer driver software which reproduces the screen display on your printer as best it can. As a result, it doesn't matter which type of printer is attached.

Nine-pin dot matrix, 24-pin, laser or something a bit more exotic? Just what are the choices for an Arc publishing system, and what are the benefits of each type?

Nine-pin dot-matrix printers are the cheapest printers you are likely to come across – they can cost as little as £125. These use a column of nine tiny pins in the printhead to hammer through an inked ribbon like a typewriter, to produce small dots on the paper. In 'normal' use the printer's own internal electronics determine the pattern produced as the printhead moves across the paper – the printer's own font and character set. However, by switching to a mode where the computer directly provides the pattern, any characters or graphics can be printed. This can be text of a different typeface, or screen pictures sent as 'graphics' data from the computer.

For DTP work, the complex page design you create on the Arc screen, complete with its wide range of typefaces, is reproduced as a page of printer 'graphics'.

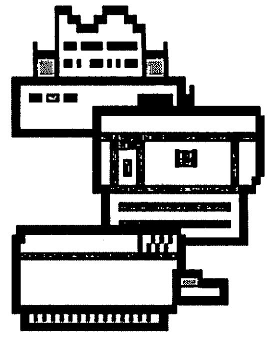
However, the process is noisy and very slow – a page of graphics can take five minutes, or more, to print. But the page is printed in sections, so if all is not going as it should, you can easily curtail the operation before too much time is wasted.

A more serious problem with dot-matrix printers is the ultimate quality of the printed image. Although some dot-matrix printers can in theory produce higher resolution print than most laser printers, in practice the results are clouded by other factors. The individual dots tend to be more like tiny splatter marks than well defined circles. And registration is poor: the movement of the head across the paper and of the paper through the machine is usually far from exact, especially on the cheaper machines, and so the printed result is uneven.

24-pin dot-matrix printers are more expensive than nine-pin machines. They work in an identical manner, but use two staggered columns of 12 much finer pins to produce the dots. This not only produces 'normal' text of a better quality, and faster too, but also prints the graphics pages required by DTP somewhat better.

The dot-matrix Risc OS printer driver, *!PrinterDM*, can cope with most popular models, and from the higher quality 24-pin machines it can produce quite acceptable results.

Although their greatly improved quality for 'normal' use makes 24-pin printers attractive for the price, the basic weaknesses of dot-matrix printers remain. More expensive machines (up to £1000 or more) just improve the speed and the number of built-in fonts – which is of no use whatsoever to Arc DTP work. But despite all its faults, a dot-matrix printer can produce quite acceptable DTP printout for as little as £200-300. And when that's about the limit of the budget available, the Archimedes is in a good position to make the best of it.



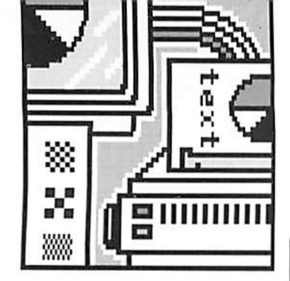
Risc OS provides drivers for many common printers, !PrinterDM, !PrinterPS and !PrinterLJ

Laser printers are without doubt the best choice for affordable yet presentable printout. Although many so-called 'laser' printers are not really such at all, they all operate in much the same way, 'real' laser or not. A laser printer is based on a special rotating drum which is first electrostatically charged. The drum is scanned by a small laser beam, and where the beam hits the drum it loses its charge. By switching the laser on and off under the control of the printer's in-built computer, an 'image' of charge is built up on the drum. Toner (powdered ink) is scattered onto the drum, and it sticks only to those parts still charged. Finally, paper is rolled around the drum, picking up the toner pattern which is then 'fixed' with a hot roller. The process is called 'xerography', and it's akin to that used in photocopiers.

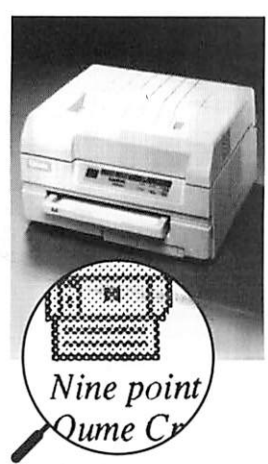
Some 'laser' printers use different methods of illuminating the drum with the image required – a line of tiny LEDs instead of the scanning laser, or a halogen lamp shone through a thin strip of liquid crystal mask. Such LED and LCD printers avoid the expensive and fragile laser mechanism, but the quality of print from them is just as good as any real laser printer.

The net result is a whole page, printed in one go, made up of dots in the same way as nine-pin and 24-pin printers. But the dots are incredible small, even, and closely packed – some 90,000 to each square inch – giving text or graphics which is beautifully crisp and clear and quite difficult to tell from typeset material.

There are, of course, problems, not the least of which is expense. Not only are laser printers fiendishly



Even the best pages on screen are only useful when you can hand



Qume Crystalprint – compact, fast, excellent laser quality, full Postscript compatibility, and a snip at £3449 (print samples are magnified 1.5 times)

expensive to buy – the cheapest model useful for DTP costs about £1500 – but they also cost a lot to run. The light-sensitive drum wears out, the toner runs out and the 'print engine' itself has a limited life. All in all, laser printout can end up costing about 5p for every sheet you print, and the nature of these machines makes printing extra copies and 'experimenting' difficult to resist.

There are two main groups of laser printer to consider: Hewlett Packard Laserjet and Postscript. A Laserjet printer has a number of fonts built-in. Text and graphics effects are called up with a series of control codes like the Escape codes used on dot-matrix printers. With the *!PrinterLJ* driver, every item on the page is printed dot by dot as graphics data, just like a dot-matrix printer.

On a Postscript printer, however, everything it prints is 'drawn' by the printer's own built-in computer – even the text. This means that once a character's design is downloaded to the printer, it can be drawn at any size and orientation quickly. But there is a complication – while text is printed very fast indeed, sprite graphics can take even longer than on a Laserjet.

Both Laserjet and Postscript laser printers can be used with Arc DTP software. The *!PrinterLJ* and *!PrinterPS* drivers cater for either, and both will ultimately give equally good results. However, since Postscript is so similar in its working to the Risc OS drawing language, it takes very little time for the page to be 'described' to a Postscript printer, and so printing takes just a few seconds instead of the minute or three required with a Laserjet. The trouble is that Postscript printers generally cost about £2000 more than Laserjet models.

Inkjet printers fill a useful middle ground position for DTP, although they remain quite undeservedly less popular. They work by squirting tiny blobs of liquid ink at the paper, to form the dots which make up the image. The advantage they have over conventional dot-matrix printers is that they often fit many more ink nozzles into the printhead, and while they are just as slow, they are almost silent in action. In particular, the Hewlett Packard Deskjet Plus demonstrates the potential of the inkjet system, and it is controlled with a subset of the HP Laserjet control language too, so it is ideal for use with DTP and the Arc. Other inkjet models are available which imitate conventional dot-matrix printers.

Some inkjet printers can even print in colour. Risc OS and Arc DTP packages can cope as well with colour as with monochrome work – it is just the printer driver that is altered. Drivers for the popular Integrex Colourjet and the horrendously expensive (but wonderful quality) colour Postscript machines are both there for the using.

Laser printer (Postscript compatible) There is no such thing as a cheap Postscript laser printer: the very cheapest costs over £3000. Only the most demanding Arc DTP user will stretch to these levels, but if you can afford it, a Postscript printer offers probably the best possible combination of quality and speed of production of Arc DTP pages.

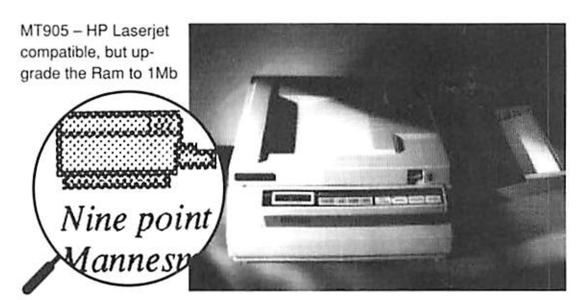
The cost is likely to be the most important factor here so the recommended model had better be the cheapest. The Qume Crystalprint Publisher is a snip at £3449. This is in fact an LCD 'laser' printer but it produces superb print and is remarkably compact, reasonably easy to operate and substantially faster than most Postscript machines. Unlike most laser printers, the Crystalprint range has its paper in-tray concealed underneath the printer mechanism and the out-tray on top, so it takes up little room on a desk. But the paper takes a tortuous path from one to another, so it's unhappy printing on heavy stock like quality letterhead (90 gram paper is about the limit).

The Crystalprint Publisher does not use the genuine Adobe Postscript language. It uses a Postscript 'clone', which does the job well enough. Some early Publishers had problems working with the Archimedes parallel port, but Qume has now sorted that out (contact Qume to upgrade your printer's Roms if you have an early machine). Other Crystalprint printers are upgradeable to Publisher level for the difference in original cost.

Laser printer (Laserjet compatible) There is an enormous range of HP Laserjet compatible printers – probably the most desirable choice for many Arc DTP users – available, and more come onto the market all the time. Prices fall and specifications rise.

The most important factor here is memory. The printer must have at least 1Mb of Ram to hold a complete page of graphics data as it is sent from the computer. Allow for the cost of a printer memory upgrade if you're shopping around for the best price. The quoted printing speed (perhaps four, six or eight pages per minute) of the machine is much less important, as it is the downloading which takes the majority of the time, not the printing. Equally, a large number of fonts built-in is immaterial for DTP work.

Many 'end of line' models can be picked up at fire sale prices, but for buying new, the Mannesmann Tally MT905 provides a good workhorse for most Arc DTP users. It costs £1600 or so, and produces excellent quality print from a reasonably-sized machine. It comes with just 512K and this should be expanded to 1Mb of memory (it can often be purchased already upgraded).



MT905 – HP Laserjet compatible, but upgrade the Ram to 1Mb

The MT905 is simple to set up and use, with an LCD display giving lots of information. Its greatest attraction, however, is its economy. This is one of the cheapest laser printers to run – and in the long run that's a very important asset.

There is a third type of laser printer on the horizon – the direct drive printer. These are specific to a particular computer. They are more common among IBM PC users, but are about to break into the world of the Arc. Instead of packing complex electronics into the printer, a direct drive printer uses the Archimedes' own memory and 'intelligence' to drive the laser beam directly. Because the printer's built-in computer, memory and expensive Postscript interpreter are cut out, they are vastly cheaper than equivalent 'normal' laser printers.

The upshot of this is that the Arc must have at least 1Mb Ram to spare, to hold the image for a full page (that's at least 2Mb in all), and a special interface podule and software to convert the print data into the electrical signals required by the print engine.

There are two direct drive laser printers on the cards for the Arc, from Rand Technology and Computer Concepts. Either of these will work extremely fast – the Arc's Arm chip is faster than the chips in normal laser printers – and these may be the printer of choice for the future. But details are still sketchy, and in any event, the printer will be dedicated to the Arc: it would be useless with a PC or Macintosh.

Dot-matrix printer (nine- or 24-pin) For DTP work there is not much point using a nine-pin dot-matrix printer. The quality simply isn't good enough – especially when the alternative 24-pin printers are so cheap. The Panasonic KX-P1124 is a 24-pin printer offering superb performance for a recommended retail price of only £399. In fact, this printer can often be found for about £150 less than that, making it one of the cheapest realistic options for DTP printout.

Like most dot-matrix printers, the KX-P1124 can use both cut sheet paper (up to A3) and fanfold 'continuous stationery'. Since it is cut sheet paper that is used most for DTP, it is important that this is handled efficiently. The KX-P1124 takes the unusual step of loading sheet paper from the front of the machine, which makes it particularly simple to use.

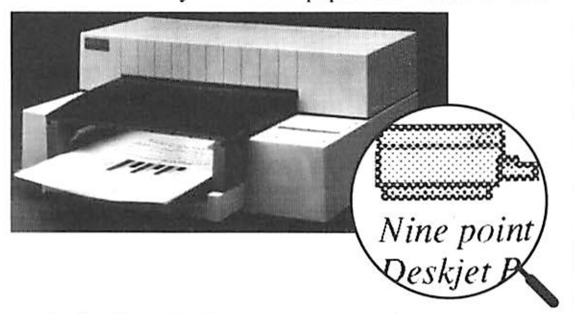
This machine can produce graphics at a resolution of 360x360 dots per inch – more than most laser printers, although the actual results will not be as attractive because of the larger dot-size and registration problems of dot-matrix printers. But the KX-P1124 also makes an ideal budget printer for other uses too. It is fast for the price, and has a range of five fonts built-in for jazzing up non-DTP work.



Panasonic's 24-pin dot-matrix printer makes a good choice for DTP on a low budget – less than £300

Inkjet printer (black and white or colour) Although many inkjet printers leave a lot to be desired when it comes to print quality, the Hewlett Packard Deskjet Plus is a true alternative to a laser printer. The Deskjet uses 56 tiny nozzles to print high resolution text and graphics. Many of the problems of normal dot-matrix printers are overcome with this method – the print is dark, even and precise.

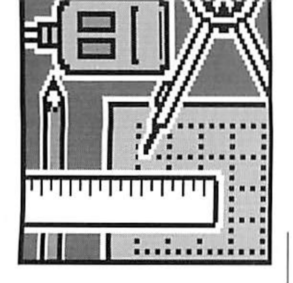
What's more, the Deskjet uses HP's Laserjet control language so it can be used with the Risc OS *!PrinterLJ* driver. The Deskjet operates much like a laser printer too. It takes only cut sheet paper and feeds it automatically from the in-tray to output bin. It can easily handle envelopes and odd paper sizes, as well as the normal A4 sheets.



The Hewlett-Packard Deskjet Plus shows what inkjet printers are capable of – laser-like quality at an affordable price

Although the print quality of the Deskjet is close to a laser printer's, it is not as fast (though it's still much faster than most dot-matrix machines). In addition, like a dot-matrix printer, the image is built up in strips across the page and so it can be stopped before much time is wasted.

The Deskjet has a recommended retail price of £741. That's cheap compared to any laser printer but this popular machine can be found for as little as £550 – half the price of even the very cheapest laser printer. All in all, a very good choice for the home.



Make your mark on paper. Carol Atack gives you some guide

Design details

Desktop publishing is one of the most successful applications ever invented for computers, because it allows you to do one of the things everybody wants to do – communicate better. It frees you from having to present your message as a long slab of text printed in the same boring typeface. Now you have a wide choice of type, both styles and sizes, and you can include pictures, charts and zappy graphics to liven up the page and make your document more interesting. And then there are rules, different kinds of decorative lines you can use, interesting typographical squiggles to drop on to the page, to say nothing of all the goodies you can import from other design applications. Your documents could look professionally produced, rather than looking as if they were knocked together on a home computer...

Stop! The biggest problem with desktop publishing is that it leads to design anarchy. You have all the tools of a traditional graphic designer, but do you have the years of experience which tell the designer when to go easy on the underlined drop shadow outline bold italic type? If you don't, the wealth of features in your page layout software could seduce you into publishing something that is even harder to read, more confusing and less attractive than that draft output from your old dot-matrix printer.



T r a d e   P r o m o t i o n s   L i m i t e d

John Smith – *Marketing Director*

101 FitzWilliam Street, Manchester M21 0QQ.
Telephone 061-123 4567. Fax 061-123 8901

Business card that uses letter-spacing and the Trinity Italic typeface to achieve a light, open effect.

The first thing to decide is the overall look of your document – whether the title should go across the top, up the side or somewhere else, and how many columns of text to use. On an A4 page, four columns look good where there are lots of short items and small pictures, three look better where there are longer items and only one large picture. Compare the news and feature pages of *BBC Acorn User*. The width of columns is important because if they are too wide the text becomes difficult to read, and if they are too narrow there will be too many hyphens or big white gaps. A traditional printer's rule of thumb was that newspaper columns should be an alphabet and a half wide – just under 40 characters. But narrower columns are sometimes used in magazines, and much wider ones in books. It depends on how your document will be read.

Space between columns is also important. It separates items and guides your eye. A space 12 points wide (a pica in printing terminology) is as effective as a rule in dividing columns. You should also leave plenty of margin round the edge of the paper; it's hard to read things that go too close to the edge.

One of the next things to decide is the typeface you're going to use. For something like a newsletter, you'll need these both for titles, in large print, and for the body text, the main matter of your document. These can be different: one general rule is to use a 'sans serif' face for the headlines, and a 'serif' face for the body text (serifs are the little feet which square off the ends of letters). But whether you use a serif face or not for your titles, it's important that it makes an impression. This is usually done by using a typeface designed to be big and beefy, or by using the bold version of a text face.

On a large page with lots of headlines, such as a broadsheet newspaper like *The Guardian*, variety is achieved by using different weights of the same headline typeface, bold, medium and light. But it's always safer to stick to the same typeface for all the headings, which will give your document an air of consistency. There are special typefaces which look hand-painted, or machine generated, or otherwise unusual. If one of these fits the message of your document, use it if you like. There is quite a lot of truth to Marshall McLuhan's slogan, 'The medium is the message'. If you're inviting people to an acid-house party, the headline face used by *The Times* is probably the wrong way to do it. And a typeface that reminds you of twenties cocktail bars is quite wrong for a business letterhead (unless you own a cocktail bar). Something with a little more 'gravity', like the business card left would be better. Spacing out the letters like the example can be an attractive effect.

It's a good idea to choose both headline and body typeface together, as some faces do work very well in combination. But for most documents just the two typefaces should be enough – using more than that looks confusing. And make sure that your headlines aren't floating in a sea of white space, but clearly belong to their stories. While creative white space is a style feature of many upmarket magazines, it takes a lot of skill to use it so that it looks intentional and not as if something got left out. Fortunately Archimedes users have had some limits placed on them by the small number of typefaces supplied by Acorn. But companies like the Electronic Font Foundry now offer a wider range of faces for you to use. So it's important to learn which kind of type is best for which document. Often the simplest and most classical looking typeface will produce the best results. After all, type face becomes a 'classic' precisely because designers know that it both looks good and is easy to read.

So which typeface should you choose for your

lines, and warns of the pitfalls...

Homerton medium

Trinity bold italic

Corpus medium

New Hall bold

Γρεεκ

Trinity medium

Homerton bold

document? First of all, think who is going to be reading it. As a general rule children find sans serif faces like Homerton easier to read, because the shapes are simpler and more like their handwriting. These typefaces are also better suited to documents where the text is quite short. But use at least a point of leading (extra space between each line), and do not justify the text; a large, spacey face like Homerton looks very strange when it's justified. More wordy documents are better served by a serif face such as Trinity, which looks better justified and is easier to read for a section long text.

However desktop publishing does allow you to use special typefaces to produce special effects very easily. Trendy professional designers often use very basic computer typefaces like the Arc's System font to create pages which look as if they were designed on a computer, to produce a modern or futuristic effect. Look at *The Face*, a magazine renowned for its design – headlines and introductions to features are often printed in the chunky, blocky Geneva font which is the basic system font used by the Apple Macintosh.

Once you've got your text sorted out, you will probably want to illustrate it. Perhaps you have some illustrations created in *!Draw*, or charts created with another graphics program. Perhaps you have a scanner and can import any 2D image to your computer. Some sample pictures to use are included with *Impression* and *Desktop Publisher*. In the corporate world where desktop publishing has been big business for a while, whole discs of pictures known as clip-art (because you can clip it out and paste it in to your document) are available both commercially and in the public domain. Two words of caution: before you scan an image check who owns the copyright and that you're not stealing it. And while a picture is said to be worth a thousand words, what is that picture doing for your words? A bad illustration could undo all your good work, especially if your document is for your business. Balancing the pictures and the text is difficult, and the three watchwords are restraint, alignment and consistency. Make the pictures fit neatly into any column structure you have. And remember the 'optical centre', the point with the most impact, is well above the middle of a page.

Rules and borders are another area for restraint: a floral border is only really appropriate if you're selling flowers or curtains. Thin borders work just as well as thick ones, and they don't dominate a page as much.

The best way to succeed with your own desktop publishing is to develop the visual sense that designers bring to their work. Look at the newspapers and magazines you read, or that the people who read your documents read, and watch for details of the type and design that they use. Shamelessly copy the designers that do it well. And don't be over-ambitious at first; a simple but well laid out document is at least as visually compelling as a fussy, overcomplicated one. But most of all, keep watching the graphics and type around you for inspiration.

Face values Although the Acorn font system is advanced in using outlines to generate the font used on screen and paper, and in hinting and anti-aliasing the smaller characters to improve their readability, there are comparitively few typefaces available in the proper Acorn format. You haven't always got the face you want to convey the right personality for your document.

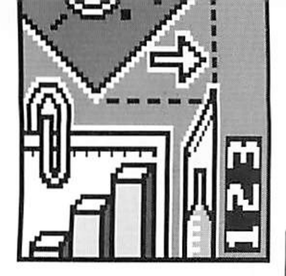
Desktop Publisher comes with Corpus, Trinity and Homerton typefaces (equivalent to Courier, Times and Helvetica) each in the four weights, plus a symbol font called Selwyn and New Hall bold (New Century Schoolbook bold). *Impression* lacks the latter two, but it has a Greek font which can be useful for equations and technical work.

Corpus is designed to look like it comes from a typewriter; all the letters are the same width. Trinity is a newspaper typeface – its letters are quite tall and thin so you get more words across a narrow newspaper column, and it's very easy to read. It's ideal for long passages of text – and it really is used by *The Times* newspaper, at 8pt size for the stories and usually in bold for headlines. Homerton is a sans-serif face with quite a 'clean' look. It's not terribly readable, but it is good for headlines and short texts. You can see it 'at work' in *Financial Times* and *Guardian* headlines. New Hall is a general-purpose seriffed typeface, but bold alone is of limited use. The other three weights cost £50 from Acorn. Most *Sunday Times* headlines use a version of this face.

Other commercial typefaces are available: Electronic Font Foundry has released around 100, ranging from those suitable for books to strange decorative scripts. These are cheaper than Acorn fonts, averaging around £7.50 each, but they aren't suitable for professional work as they don't match any Postscript faces. You can't output them on a Postscript laser printer or typesetting machine. The same EFF typefaces are also available from Ian Copestake, well-known for earlier *First Word Plus* fonts. Beebug will supply extra fonts too. Its first pack contains Paladin (Palatino), Vogue (Avant Garde) and SwissB (another Helvetica) in four weights, plus SymbolB (another Greek) for £55.

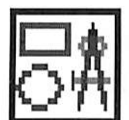
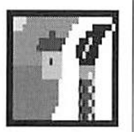
This supplement is set in 9pt Trinity medium with 1.5pt of extra leading. Bold and italic are used for emphasis. Headlines are tightly kerned 60pt Homerton bold, and captions 6pt Homerton with 2pt leading.

A good introduction to design principles is Desktop Publishing Design Basics by Holmes, Lubelski, Powell and Ranger, published by Blueprint Publishing, or DTP at a Glance by Rob Pickering, published by Bookmark Publishing.



Risc OS multi-tasking offers a chance for several simple programs

Publishing in partnership

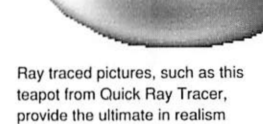



Any !Draw and !Paint files can be used to illustrate your desktop published pages – and to create special typographical effects

'The Archimedes is a great machine, full of fun for the technophiles, but there's no software for it.' This lame excuse is limping more noticeably every week. A full year after the release of Risc OS, quality applications are now quite common.

For desktop publishing, page layout software is the heart of any enterprise. But incorporating illustrations, reading text or graphics from other machines and – most importantly – doing all this easily, is something the Arc excels at. Illustrations can be taken from a variety of document scanners, video digitisers, painting packages, saved screens and ray tracing applications, even transferred from other micros and converted into Archimedes format. Spreadsheets can be linked to business graphing packages, CAD software can be used to create mechanical drawings, clip art packs can be plundered, and decorative text effects can be used to enliven the dullest poster. Complex? Not really, as the Arc's multi-tasking Wimp system makes it relatively simple to transfer data from one type of application to another by using the mouse.

The key to it all is file types. *Impression* and *Desktop Publisher* use frames to contain every element on the page. Both can make use of three different types of element: text, line graphics such as graphs or diagrams held in a *!Draw* file, and bit-mapped (sprite) graphics such as scanned pictures in a *!Paint* sprite file. It's clear that you can use the *!Draw* and *!Paint* programs to create these files, but the diagram opposite shows a selection of other applications that can save the same type of drawing and sprite files. And by making use of multi-tasking, you can run many of these applications at the same time as your page layout software, and transfer your drawing or sprite directly on to the page. Or you can transfer it to *!Draw* or *!Paint*, make final adjustments, then transfer it onwards into your publishing package. Doing this directly does mean you need lots of memory – see the panel opposite – but if you only have 1Mb of Ram, you can still do everything by saving your drawing or sprite to a file on disc, quitting, then starting up *Impression* or *Desktop Publisher* and loading the file from disc. More Ram makes it slicker, but if the extra chips would bust your budget, then it's all still possible on an out-of-the-box A3000.



Ray traced pictures, such as this teapot from Quick Ray Tracer, provide the ultimate in realism

The quality of the display is one of the Arc's prime assets, so it's no surprise that screen art, graphics and video applications form the most numerous software group. If you have some artistic talent, then you can create your own illustrations with a painting package. The best-established of these is undoubtedly Clares' *Artisan*, now in mark two form and compatible with other Risc OS programs. It allows you to paint in mode 12 using 16 colours and a good range of brushes, tools and effects. *Pro-Artisan* is its elder brother – more expensive and differing primarily in using mode 15 and giving you a palette of 256 colours to work with. Both allow you to zoom in on details of a picture to get them just right, and both can save their completed 'canvasses' as standard sprite files.

Three other painting packages demand mention for their range of drawing tools – *Art Nouveau* from Computer Assisted Learning, Minerva's *Atelier* and ExpLan's *Arcol*. Again, all are capable of saving standard Risc OS sprite files, which can be loaded into a frame in *Impression* or *Desktop Publisher*.

Another source of your own illustrations is a ray-tracing package, of which Clares' *Render Bender* is the prime commercial example. *Quick Ray Tracer* is a similar package, available in the public domain. These use a complex mathematical language to describe the objects in the scene you want, and create beautiful full-colour pictures. But they are impractical for anything except the most artificial illustrations.

Creating your own illustrations is a very time-consuming task: even a simple cartoon can take hours to perfect. A short cut for those of more modest artistic ability is to use a document scanner or video digitiser. Scanners take a printed picture, preferably a black and white photograph or line drawing, and convert it into a sprite file. That same cartoon could be drawn with a pen and scanned in a matter of minutes. There are several Arc scanners on the market, ranging from simple 4in wide hand-held monochrome scanners at about £150, to A4-width, motorised devices capable of resolving 16 shades of grey at 200 pixels per inch.

With any scanner, it's possible to trade resolution for a better range of greys, so the cheaper hand scanners can be used to produce 16-grey sprites at a lower than usual resolution. Beebug, Watford and Technomatic all sell similar hand scanners capable of black and white scanning at 400 dots per inch (dpi), or 16-grey scans at about 100 dpi. If the photograph or scanned page is of reasonable size, then the resolution won't usually be a problem. And 16 shades of grey is adequate for all but the most demanding publications – the A3000 photograph on page three of this supplement has only 16 shades of grey. All the less expensive scanners are hand-held: you slowly roll them across the picture to be scanned and watch the sprite being produced on the screen. The quality of the sprite can depend on your

to work together to achieve seemingly complex results...

steadiness of movement, and while you don't need the hands of a surgeon to use them successfully, a motor-fed scanner can be better. For the ultimate in quality at a price, Irlam Instruments builds a motorised 16-grey level, 200 dots per inch scanner costing a cool £750.

The alternative to a scanner is a video digitiser. Combined with a camera or other video source (such as a videocassette recorder or videodisc player) a digitiser turns the video picture into a sprite (or a saved screen, which can be treated identically). Watford and Brainsoft both make monochrome digitiser podules. The first is 'real-time'; it digitises every video frame and can display a moving image on the Archimedes screen – useful for checking the picture as you grab it. The Brainsoft Multipod takes several seconds to grab a frame, and so it's only useful if you have a still subject and steady video source (say a camera on a tripod, or a video-recorder with freezeframe). Colour digitisers also exist, from Pineapple, Lingenuity and Hawk for example, but they are more expensive, specialist devices and rarely used for desktop publishing.

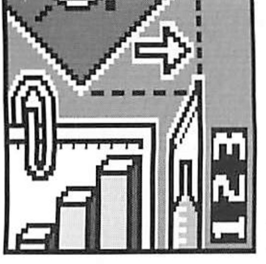
You'll often find that the sprites you use for illustrating your documents are huge files – a quarter of a megabyte for a scanned image is not uncommon. An all-purpose program called *ChangeFSI*, available by sending a disc to Robert Hamilton (address overleaf), can be used to reduce the size of sprites or change colour images to mono without losing too much of the image's quality. *ChangeFSI* also acts as a vital bit of glue: it can translate some images from other micros into Archimedes sprites, for example TIFF files from a Macintosh or Electronic Arts files from an IBM PC. A second bit of 'nearly free' software can help this along: *!PCDir* from Norwich Computer Services can read MS-Dos discs from an IBM PC (and Atari ST discs too), and it presents the files in a filer window on the desk-

Upgrading your Arc Multi-tasking is memory hungry: Acorn's *Desktop Publisher* is such a large program that running on an unexpanded 1Mb machine is only just practicable; running another significant application alongside is out of the question. *Impression* leaves more memory free, but for major-league publishing, there's no doubt that a hard disc and 2Mb of memory are desirable. An Arc 420/1 looks close to the ideal. But if you have an original A310, a new A3000 or a 410/1, there's a variety of upgrade routes.

Top of the list has to be memory: for a 410/1, look no further than an Acorn dealer who can plug in eight new memory chips to add that extra megabyte. The current going rate is around £125. An A3000 has connectors for an extra memory board and Acorn, Morley, Watford and others will provide a 1Mb add-on which can be fitted at home for between £150 and £200. The A310 was not designed to be upgraded beyond 1Mb, but with some ingenuity, more memory can be plugged in. Watford, Computerware and CJE Micros have the hardware: prices range from £325 (Watford, fit it yourself) to £380 (collected, fitted professionally by CJE and delivered back).

Hard discs are simple to fit to a 400-series machine – all the connections are already there inside the case. A310s require an interface podule as well (and a backplane if you don't already have one). A3000s can only have an external hard drive added, and require an interface podule too. Probably the most comprehensive expansion system for the A3000 is from Pres. It can house extra floppy (3.5in and 5.25in) and hard drives as well as a single standard podule and several A3000-only mini-podules. Adding a 5.25in floppy drive to an A310 or A400-series machine requires an external drive adapter to link the drive to the Arc.

Top: Dennis the Menace drawn with Artisan 2 by Rob Miller.
Above: Drawing and sprite file transfer options. Diagrams like this are best created with !Draw. If you're using Acorn's Desktop Publisher, use !Draw to do the diagram border too, as the built-in frame borders are always too thick. Impression allows you a better choice of frame border thickness



ACE COMPUTING, 27 Victoria Road, Cambridge, CB4 3BW. Tel: 0223 322559
ACORN, Fulbourn Road, Cherry Hinton, Cambridge, CB1 4JN. Tel: 0223 245200
BEEBUG/RISC USER, 117 Hatfield Road, St Albans, Herts., AL1 4JS. Tel: 0727 40303
BRAINSOFT, 106 Baker Street, London, W1M 1DF. Tel: 071-486 2111
CJE MICROS, 78 Brighton Road, Worthing, W. Sussex, BN11 2EN. Tel: 0903 213361
CLARES, 98 Middlewich Road, Northwich, Cheshire, CW9 7DA. Tel: 0606 48511
COLTON SOFTWARE, Broadway House, 149-151 St Neots Road, Hardwick, Cambridge, CB3 7QJ. Tel: 0954 211472
COMPUTER ASSISTED LEARNING, Strathclyde Business Centre, Princess Road, New Stevenson, ML1 4JB. Tel: 0698 733775
COMPUTER CONCEPTS, Gaddesden Place, Hemel Hempstead, Herts., HP2 6EX. Tel: 0442 63933
COMPUTERWARE, 11 Livestock Market, Hall Road, Norwich, NR4 6DW. Tel: 0603 507799
DABHAND COMPUTING, 5 Victoria Lane, Whitefield, Manchester, M25 6AI. Tel: 061-766 8423
DATA STORE, 6 Chatterton Road, Bromley, Kent. Tel: 081-460 8991
ELECTRONIC FONT FOUNDRY, 18 Brockhurst Road, Ascot, Berks. Tel: 0990 28698
EXPLAN, 34 Drake Gardens, Tavistock, Devon.Tel: 0822 613868
HEWLETT PACKARD, Nine Mile Ride, Wokingham, Berks., RG11 3LL. Tel: 0344 773100
IAN COPESTAKE, 10 Frost Drive, Wirral, Merseyside, L61 4XL. Tel: 051-648 6287
IRLAM INSTRUMENTS, 133 London Road, Staines, Middlesex, FW18 4HW. Tel: 0784 451192
LINGENUITY, Wood Farm, Linstead Magna, Halesworth, Suffolk, IP19 0DU. Tel: 0986 85476
MANNESMAN TALLY, Molly Millers Lane, Wokingham, Berks, RG11 2QT. Tel: 0734 788711
MINERVA, 69 Sidwell Street, Exeter, Devon, EX4 6PH. Tel: 0392 437756
MORLEY ELECTRONICS, Morley House, off Norham Road, North Shields, Tyne and Wear, NE29 7TY. Tel: 091-257 6355
NORWICH COMPUTER SERVICES/ARCHIVE MAGAZINE, 18 Mile End Road, Norwich, NR4 7QV. Tel: 0603 507057
OAK, Cross Park House, Low Green, Rawdon, Leeds, LS19 6HA. Tel: 0532 502615
PANASONIC, Panasonic House, Willoughby Road, Bracknell, Berks., RG12 4FP. Tel: 0344 853551
PRES, PO Box 319, Lightwater, Surrey, GU18 5PW. Tel: 0276 72046
QUME, Qume House, Parkway, Newbury, Berks, RG13 1EE. Tel: 0734 584646
REDWOOD PUBLISHING/BBC ACORN USER, 20-26 Brunswick Place, London, N1 6DJ. Tel: 071-490 1444
ROBERT HAMILTON, The Forge, High Street, Loftus, Saltburn, Cleveland, MS13 4HW.
SOFTWARE SOLUTIONS, Broadway House, 149-151 St Neots Road, Hardwick, Cambridge, CB3 7QJ. Tel: 0954 211760
TAXAN, Taxan House, Cookham Road, Bracknell, Berks., RG12 1RB. Tel: 0344 484646
TECHNOMATIC, Techno House, 468 Church Lane, London, NW9 8UF. Tel: 081-205 9558
WATFORD ELECTRONICS, Jessa House, 250 Lower High St, Watford WD1 2AN. Tel: 0923 37774

Multi-tasking plus easy data transfer equals software synergy...

top. They can be dragged directly into an application, or saved on an Arc disc (you don't need two drives). *!PCDir* and *ChangeFSI* give you access to a huge selection of illustrative material on other micros.

So far, all the illustrations have been sprites, so there's the possibility to 'retouch' them by doing minor editing in *!Paint* or any other painting application. So it's easy to get rid of minor blemishes in a scan, or combine two pictures by overlaying them (Use Sprite as Brush is the option to do that in *!Paint*). And finally, you can set a mask on a sprite to make parts of the picture transparent – say to cut out the main image like the A3000 illustration on page three.

Line drawings and diagrams are often better created with *!Draw*: both *Desktop Publisher* and *Impression* can import drawing files. *!Draw* itself is a capable package, and can be used for even very complex tasks. Remember that you can use it to combine sprites, line objects and text – though text areas (blocks of text imported from *!Edit* to *!Draw*) can't be used.

One common use of *!Draw* is to create graphs for business documents or school projects. There is a better way: you can use a graphing package like Minerva's *Graphbox* or *Presenter* from Lingenuity. Both of these allow you to type data onto a spreadsheet-like grid, and then select what sort of graph should be drawn. *Presenter* has the better range of options for labelling, and is easier to use, though Minerva provides a larger selection of graph types. Making full use of Risc OS' multi-tasking, you can go a stage further and transfer the data directly from a spreadsheet like Colton's *Pipedream* to your graphing program (use the Snapshot option, then export as a CSV or Comma Separated Value file), then take the graph into *!Draw* to make final adjustments to the labelling, then finally place it on your page.

Computer Aided Design packages like Oak's *PDT* or *Euclid* from Ace Computing can also be used as a source of *!Draw* files – they are best at engineering drawings and 3D respectively. If your needs are more decorative, then 'clip art' discs can be raided. These are collections of ready-made drawings, covering all sorts of subjects. Both *Impression* and *Desktop Publisher* are bundled with small selections; additional clip-art discs can be bought from Dabhand Computing.

Finally, *!Draw* has the ability to manipulate text. As Archimedes typefaces are outlines, you can use the outline of a character as a drawing – so with *!Draw* you can manipulate it in any way. Three programs make this possible: *!Fontdraw* which is sold with *Impression*, Acorn's *!Fonted* typeface editor and *!FontFX* from Data Store. All turn character outlines into *!Draw* files: *!FontFX* can also add a number of effects like shadows or colour and deform type into a circle as well – it's ideal for logos, posters and the like.

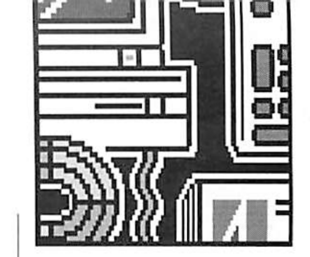
The multi-tasking nature of Risc OS makes it easy to bolt together a number of simple programs like these to achieve an apparently complex result. Using additional software and hardware in concert with your page layout package extends the power of your publishing.

Colourful characters One of the features that sets typesetting apart from typewritten material is the use of quotes, dashes, bullets and so on: characters that don't appear on the qwerty keyboard. Both *Impression* and *Desktop Publisher* are clever enough to turn ' and " characters into proper open and closed quotes when they are imported from a wordprocessor. But beware of text you type directly on to the page, and text like '80s or fish 'n' chips, where the import routine goes wrong. Use Alt-144 and Alt-145 for single quotes, Alt-148 and Alt-149 for double – hold down the Alt key and type the number on the numeric pad.

A dash used as punctuation is another item that can betray typescript. There are three lengths, hyphens (-), en rules (–), and em rules (—). En rules are generally used in cases like 6–7 years old, or the London–New York flight. When used correctly, em rules indicate pauses—like this. But frequently, as in this supplement, an em rule looks too long, and using a shorter en rule plus a couple of spaces is an improvement. An en rule can be typed with Alt-151, and Alt-152 gives an em rule. Alt-153 looks very similar, but it is in fact a minus sign. A good ploy is to use double or triple hyphens for en and em rules when you're writing text in a wordprocessor, then use search and replace to put in the correct dashes once it's on the page.

Another group of symbols often appear in text, particularly documents like reports or brochures: bullets or blobs. •Every typeface has one small blob, Alt-143. Acorn's Selwyn supplied with *Desktop Publisher* is what typesetters would call a 'pi font' – a collection of useful symbols – and Selwyn contains a handy set of extra bullets. *Impression* doesn't have any usable equivalent, though you can use Selwyn without problems if you have both packages.

The only difficulty with these characters is typing them in: you can look up the numbers and type Alt-109 to get ❍, but there is a better way. A simple application called *!Chars* (a version is supplied with *Pipedream*) allows you to type in any symbol or letter from any typeface by picking it with the mouse.



Graham Bell looks at how desktop publishing works in practice

Archimedes in action

'It's all very well in theory...' And in fact, the practice works well too. This supplement was produced entirely on an Acorn Archimedes A420 fitted with a hard disc. It could just as easily have been an A3000. And although the most frequently heard criticism of the Arc is its narrow software base, all the software needed to create the supplement was readily available. *Impression* was used for the page layout, and also as a wordprocessor for writing some of the text for the main articles. The original sketches for the page design were transferred onto an *Impression* master page, with the locations of items like headlines and columns delineated by guide frames. Styles were defined for the main text, headlines, captions and so on, and the whole lot saved as a blank document. Using this as a template for each of the real pages gave the layout a consistency throughout the 16 pages of the supplement. The master page also included the black bars for page numbers, the tiny acorn symbol (from the Selwyn font, but turned into graphics with *!Fontdraw*), plus the footer text.



The text for the articles was written on a variety of wordprocessors ranging from *View* to *First Word Plus* and *MacWrite*, and the plain text was imported into *Impression* and put into the two columns per page.

Illustrations were culled from a variety of sources. Line diagrams were created in *!Draw*, often including sprites taken from application directories or drawn with *!Paint*. Some pictures (like the one here) were scanned from black and white photographs using Irlam Instruments' scanner to give 16 grey levels at 200 dots per inch, the others with Computer Concepts' forthcoming Scanlight Plus which allows 64 greys but at a lower resolution. It is the scanning of illustrations where the Arc still falls shortest of truly professional standards – line diagrams and the text are of a very high standard.

The artwork on the cover and at the head of each article was created by computer artist Jonathon Inglis on an IBM PC using Electronic Arts painting software – but was transferred from IBM to Arc using *!PCDir* to read the disc and *!ChangeFSI* to translate the file into Arc sprite format. Once on the page, the sprites and drawings were printed out on a Qume Crystalprint printer along with the text. When each page was complete, proofs were checked and corrected then turned into Postscript files by printing to a disc file with *!PrinterPS*. These Postscript files were taken to a typesetting bureau and set directly onto film (from which the printers make printing plates) using a Linotronic 300 typesetting machine. Only the colour on the cover was treated traditionally, using Integrex Colourjet prints of the sprites.

As well as this supplement, *Impression* and *Desktop Publisher* have already been used for other published work. Two items are illustrated here. The Bird Information Service's *Birding World* contains advertisements typeset with both *Impression* and *Desktop Publisher*, and East Grinstead Horticultural Society has used *Impression* to design its year book. Both items show it's not just magazines that can benefit from desktop publishing – forms and advertisements, business cards, letters, posters and a host of other documents can all gain from the better presentation made possible by desktop publishing software. It's strongly 'democratic' software that lets everyone share the credibility afforded by well-presented printed matter – a credibility that was once the preserve of those who could pay for 'real' typesetting. The emphatic message is that 'you can do it', and create affordable publications to a very high standard at home.



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Above: Birding World advertisements set using an Arc.
Below: East Grinstead Horticultural Society's year book.
Left: Impression's ability to print tiny 'thumbnails' of each page (stuck on the wall) proved a handy way to keep track of progress as each page developed.

MONTHLY COMPETITION TABLE

1990

JANUARY	Pot Plant for Foliage Effect
FEBRUARY	Bowl of Daffodils/Narcissi - minimum of 3 bulbs
MARCH	Bowl of Tulips - minimum of 3 bulbs
MAY	Pot Primula
JUNE	Single Stem Floribunda Rose
AUGUST	Two Spikes of Gladioli
SEPTEMBER	Five Tomatoes
OCTOBER	Five Culinary Apples
NOVEMBER	Six Brussels Sprouts

1991

JANUARY	Flowering Pot Plant
FEBRUARY	Petite Flower Arrangement in a basket; dried plant material only; maximum size 9in overall
MARCH	Bowl of Hyacinths - minimum of 3 bulbs

ENTRY IS FREE

Points awarded:	First 4 Points	Second 3 Points
	Third 2 Points	Others 1 Point

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